UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
BAUER, SCOTT ALLEN

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2008*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-10,12-17 and 19-22* is/are rejected.

7)☒ Claim(s) *6,11 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1.   Claims 1-5, 7-10, 12-17 & 19-22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Maxim (Maxim Data Sheet 19-2735; Rev 0; 1/03) in view of

Suessmilch (US 3,886,932).

With regard to Claims 1 & 13 Maxim, in figure 3, discloses a power supply

system comprising: a power supply (Silver Box or Rectifiers); a load (output bus)

coupled to the power supply via a power supply line to receive a voltage therefrom; a

circuit protection device comprising: at least one switch device (Q1 & Q2) coupled

between the power supply and the load on the power supply line; a first controller

(MAX8536) coupled to the at least one switch for: monitoring current flow through the at

least one switch; maintaining the at least one switch in an ON state while current flows

through the at least one switch in a first direction; and causing the at least one switch to

toggle to an OFF state if current flowing through the at least one switch (Q1) flows in a

second direction (page 1); and a second controller (the device to provide the $\overline{ENABLE}$

signal of Fig. 3) coupled to the first controller and causing the first controller to toggle

the at least one switch to the OFF state (page 11 paragraph 4).

Maxim teaches that a timer input can be used as a logic enable pin by driving the

gate of a MOSFET with an $\overline{ENABLE}$ signal which causes the first controller to toggle

the at least one switch to an Off state. The external $\overline{ENABLE}$ signal would necessarily

come from a second controller.

Maxim does not teach the second controller is coupled to the power supply line

between the power supply and the at least one switch for sensing an amount of current

flowing between the power supply and the at least one switch and causing the at least

one switch to toggle to the OFF state when the current sensed by the second controller

exceeds a reference value.

Suessmilch, in Figure 1, teaches an over current protection circuit comprising a

second controller (5 & 6) coupled to a power supply line between a power supply (1)

and an at least one switch (3) and coupled to the first controller (7) for sensing an

amount of current flowing between the power supply and the at least one switch and

causing the first controller (7) to toggle off the at least one switch to toggle to the OFF

state when the current sensed by the second controller exceeds a reference value

(column 2 lines 1-18).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teachings of Maxim with Suessmilch, by

incorporating the overcurrent protection device of Suessmilch into the circuit of Maxim

by driving the FET of Maxim with the output of the circuit of Suessmilch, for the purpose

of using the device of Maxim to prevent a load from burning out due to a short circuit.

With regard to Claims 2 & 14, Maxim in view of Suessmilch discloses the power

supply system of Claims 1 &13. Maxim further discloses that the at least one switch

comprises a pair of MOSFETs (Q1 & Q2).

With regard to Claims 3 & 15, Maxim in view of Suessmilch discloses the power supply

system of Claims 2 & 14. Maxim further discloses that the first controller comprises a

first input (UVP) coupled to the power supply line between the pair of MOSFETs and the

power supply, a second input (OVP) coupled to the power supply line between the pair

of MOSFETs and the load, and an output (GATE) coupled to gate terminals of the pair

of MOSFETs, wherein, when the output is in a first state, the pair of MOSFETs is in the

ON state and when the output is in a second state, the pair of MOSFETs is in the OFF

state.

With regard to Claims 4 & 16, Maxim in view of Suessmilch discloses the power

supply system of Claims 3 & 15. Suessmilch further discloses that the second controller

comprises a current sensing device (5) coupled to the power supply line between the

power supply (1) and a switch (3) for sensing the current in the power supply line and

outputting a sensed voltage corresponding to the sensed current, a comparing device

(6) for comparing the sensed voltage to a reference voltage and outputting a first output

when the sensed voltage exceeds the reference voltage.   Maxim further teaches a switch (FET coupled to the timer) coupled between the comparing device and the gate terminals of the pair of MOSFETs. In the device of Maxim in view of Suessmilch, the switch, upon receiving the first output of the comparing device (as enable), operates to toggle the pair of MOSFETs to the OFF state.

With regard to Claims 5 & 17, Maxim in view of Suessmilch discloses the power supply system of Claims 4 & 16. Maxim further discloses that the first controller comprises a timer device and, upon receiving the first output from the comparing device of Suessmilch, the second controller switch (Timer FET) operates to disable the timer, thus driving the output of the first controller from the first state to the second state, causing the pair of MOSFETs to toggle to the OFF state.

With regard to Claims 7 & 19, Maxim in view of Suessmilch discloses the power supply system of Claims 4 & 16. Suessmilch further discloses that , upon receiving the first output from the comparing device, the second controller switch operates to pull the control terminals from the first state to the second state, causing the pair of MOSFETs to toggle to the OFF state (column4 lines 23-37).

With regard to Claims 8 & 20, Maxim in view of Suessmilch discloses the power supply system of Claims 1 & 13. Maxim further discloses that the first controller comprises a first input (UVP) coupled to the power supply line between the at least one

switch and the power supply, a second input (OVP) coupled to the power supply

between the at least one switch and the load, and an output (GATE) coupled to a

control terminal of the at least one switch, wherein, when the output is in a first state,

the at least one switch is in the ON state and when the output is in a second state, the

at least one switch is in the OFF state.

With regard to Claims 9 & 21, Maxim in view of Suessmilch discloses the power

supply system of Claims 8 & 20. Suessmilch further discloses that the second controller

comprises a current sensing device coupled to the power supply line between the power

supply and the at least one switch for sensing the current in the power supply line and

outputting a sensed voltage corresponding to the sensed current, a comparing device

for comparing the sensed voltage to a reference voltage and outputting a first output

when the sensed voltage exceeds the reference voltage. Maxim further teaches a

switch (TIMER FET) coupled between the comparing device of Suessmilch and the gate

terminals of the at least one switch, wherein the switch, upon receiving the first output of

the comparing device, operates to toggle the at least one switch to the OFF state.

With regard to Claim 10, Maxim in view of Suessmilch discloses the power

supply system of Claim 9. Maxim further discloses that the first controller comprises a

timer device and, upon the first output from the comparing device of Suessmilch, the

controller switch (Timer FET) operates to disable the timer device, thus driving the

output of the first controller from the first state to the second state, causing the at least

one switch to toggle to the OFF state.

With regard to Claim 12, Maxim in view of Suessmilch discloses the power

supply system of Claim 9. Suessmilch further discloses that upon receiving the first

output from the comparing device, the second controller switch operates to pull the

control terminals from the first state to the second state, causing the at least one switch

to toggle to the OFF state (column4 lines 23-37).

With regard to Claim 22, Maxim teaches a fault protection system and method of

providing fault protection in a power supply system, the system and method comprising:

monitoring, with a first controller, a current flowing from a power supply to a load via a

power supply line; toggling, with the first controller, a switch device coupled between the

power supply and the load in the power supply line from an ON state to an OFF state

when the current begins to flow from the load to the power supply, a second controller

(the device to generate the $\overline{ENABLE}$ signal), the second controller causing the first

controller to toggle the switch device from the ON state to the OFF state (page 11

paragraph 4).

Maxim does not teach using the second controller to monitor the amplitude of the

current flowing in the power supply line; and when the amplitude of the current in the

power supply line exceeds a reference value, using the second controller to toggle the

switch device from the ON state to the OFF state.

Suessmilch, teaches monitoring, with a second controller (5 & 6) the amplitude of

the current flowing in the power supply line; and when the amplitude of the current in the

power supply line exceeds a reference value, the second controller (5 & 6) causing the

first controller (7) to toggle the switch device (3) from the ON state to the OFF state.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine the teachings of Maxim with Suessmilch as described above.

Allowable Subject Matter

2.   Claims 6, 11 & 18 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Claims 6, 11 & 18 would be allowable if rewritten in independent form including

all of the limitations of the base claim because the prior art of record does not teach or

fairly suggest a power supply system of Claim 4 comprising an under voltage protection

device wherein a second controller switch operates to enable the under voltage

protection device, thus driving the output of the first controller from the first state to the

second state.

Maxim, in the Figure "UVP FAULT WAVEFORM"", teaches that the gate output

switches from a first state to a second state, when the under-voltage protection input

drops below a certain voltage level. However, the prior art of record does not teach

that the pin can be driven low with a switch when the current sensed by the second

controller exceeds a reference value.

Response to Arguments

Applicant argues the combinability of the Maxim Data Sheet with Suessmilch.

Applicant states that there is no evidence in the prior art that suggests the desirability to

Drive the FET of Maxim with the output circuit of Suessmilch and that the rejection was

constructed with improper hindsight reasoning.

In response to applicant's argument that the examiner's conclusion of

obviousness is based upon improper hindsight reasoning, it must be recognized that

any judgment on obviousness is in a sense necessarily a reconstruction based upon

hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does

not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA

1971).

Maxim provides a mean for preventing a current reversal in redundant systems

but does not provide adequate means of protecting the load from the very real problem

of an over current condition. Maxim is aware of the existence of fault protection circuitry

as the ORING MOSFETs themselves are to prevent damage caused by a fault in the

system. There however exists many faults which Maxim does not provide protection for

including arc faults, ground faults, over and under voltage conditions as well and over current conditions. Maxim further provides an ENABLE signal which is used to turn the MOSFETs on and off for various reasons. Maxim does not teach every possible reason that the device could be turned on and off but teaches that the signal would be provided by an external device.

Suessmilch teaches a circuit which sends an enable and disable signal to a device which controls the opening and closing of a switch to provide or withhold power to a load. Suessmilch teaches that a circuit external to the device that energizes the switch provides an ENABLE signal to the energizing circuit when the power is in a normal operating range and disables the device thus de-energizing the switch when the power is in an over voltage range. As stated in the previous action if one were interested in protecting a circuit that is energized and de-energized by the circuit taught by Maxim, then on of ordinary skill in the art would recognize that driving the ENABLE signal of Maxim with the circuit output of the device of Suessmilch would be an easy way to provide this protection. The motivation is to prevent the ORING MOSFETs of Maxim and the load from burning out due to a short circuit in the system. Many systems are provide with over voltage protection and as such it is believed that one of ordinary skill in the art would recognize that the combination of Maxim with Suessmilch would provide such a function. As such, the prior rejection is maintained.

Conclusion

3.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to SCOTT BAUER whose telephone number is (571)272-

5986. The examiner can normally be reached on M-F 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836

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